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<b>(21) International Application Number:</b> PCT/GB00/01114 <b>(22) International Filing Date:</b> 23 March 2000 (23.03.00)  <b>(30) Priority Data:</b> 9906914.8 26 March 1999 (26.03.99) GB  <b>(71) Applicant (for all designated States except US):</b> QUEST INTERNATIONAL B.V. [NL/NL]; Huizerstraatweg 28, NL-1411 GP Naarden (NL).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> EYRE, Heather [GB/GB]; 4 Horsley Close, Hawkinge, Folkestone, Kent CT18 7FN (GB). HILLS, Maxine, Jayne [GB/GB]; 37 Christchurch Road, Ashford, Kent TN23 7XD (GB). WATKINS, Stephen, David [GB/GB]; 1 Kennington Place, Kennington, Ashford, Kent TN24 9HZ (GB).  <b>(74) Agent:</b> KEITH W NASH & CO.; 90-92 Regent Street, Cambridge CB2 1DP (GB).		<b>(81) Designated States:</b> AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> COMPOSITIONS CONTAINING BOSWELLIA EXTRACTS  <b>(57) Abstract</b>  A composition suitable for use on the skin or hair comprising: a) at least one extract of a Boswellia plant, or at least one boswellic acid or derivative thereof; and b) a carrier selected from the group consisting of branched fatty alcohols containing 8 to 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24 carbon atoms and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and said unsaturated fatty acids, or mixtures thereof. The extract, or boswellic acid or derivative thereof, is useful in preparing skin care or hair care compositions with the ability to provide a soothing effect to irritated skin.		

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Title: Compositions Containing Boswellia Extracts

Field of Invention

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The invention relates to compositions comprising at least one Boswellia extract, or at least one boswellic acid or derivative thereof. The compositions are suitable for application to the skin or hair.

10 Background of Invention

It has long been known that extracts of the Boswellia family of plants including Boswellia Serrata can produce a soothing effect to irritated skin and that this activity is due to the terpenoid compounds grouped under the general name 'boswellic acids'. The different  
15 boswellic acids share the same basic pentacyclic triterpene (steroid-like) structure but differ in their side groupings.

EP-A-755,940 relates to a novel fraction and a process for the isolation of said fraction comprising a mixture of specified boswellic acids from the gum resin of Boswellia Serrata.  
20 The fraction is stated to exhibit anti-inflammatory, anti-arthritis and antiulcerogenic activity.

Typical extracts of Boswellia plants are solids or powders with a wide melting range - normally above 80°C. To allow for easy incorporation into compositions which are  
25 suitable for use on the skin or hair, an extract of Boswellia, containing the boswellic acids, or boswellic acids or derivatives thereof themselves, need to be dissolved or dispersed in a suitable carrier. Although they can be dissolved in solvents such as methanol, ethyl acetate, acetone, and the like, these solvents are not suitable for use in typical skin and hair care formulations because of their aggressive solvent action on the skin and hair,  
30 and/or because of their high volatility and/or strong odour.

Ingredients which are commonly used in skin care or hair care formulations, such as glycerine, sorbitol, mineral oil, cyclomethicone, dimethicone and petrolatum are not suitable solvents or carriers for Boswellia extracts or boswellic acids or derivatives thereof as they are either too polar or not sufficiently polar.

5

Alkalies can produce aqueous solutions of boswellic acids by forming the respective salts. However, prolonged skin or hair contact by alkaline products (e.g. with a pH greater than 8.5) is not recommended, especially for sensitive skin or scalp, or for damaged hair.

- 10 We have now surprisingly found that a specified group of fatty alcohols or fatty acids, or derivatives, or mixtures thereof, are suitable carriers for dissolving and/or dispersing at least one Boswellia extract, or at least one boswellic acid or derivative thereof. Further, the carrier aids the incorporation of the extract, or acid, into compositions suitable for use on the skin or hair and improves the stability of said compositions containing the extract,  
15 or acid.

### Summary of the Invention

- According to a first aspect of the invention, there is provided a composition suitable for  
20 use on the skin or hair comprising;

- a) at least one extract of a Boswellia plant, or at least one boswellic acid or derivative thereof; and
- 25 b) a carrier selected from the group consisting of branched fatty alcohols containing 8 to 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24 carbon atoms, and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and said unsaturated fatty acids, or mixtures thereof.

30

According to a second aspect of the present invention, there is provided a method of preparing a composition suitable for application to the skin or hair comprising mixing a composition comprising;

5 a) at least one extract of a Boswellia plant, or at least one boswellic acid or derivative thereof; and

b) a carrier selected from the group consisting of branched fatty alcohols containing 8 to 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty  
10 alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24 carbon atoms, and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and said unsaturated fatty acids, or mixtures thereof

with at least one cosmetically or pharmaceutically acceptable ingredient.

15

According to a third aspect of the present invention, there is provided a use of a composition comprising;

a) at least one extract of a Boswellia plant, or at least one boswellic acid or derivative  
20 thereof; and

b) a carrier selected from the group consisting of branched fatty alcohols containing 8 to 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty  
alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24  
25 carbon atoms, and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and said unsaturated fatty acids, or mixtures thereof,

for preparing compositions suitable for application to the skin or hair.

30 The compositions of the invention comprise at least one extract of a Boswellia plant, or at least one boswellic acid or derivative thereof.

The compositions of the present invention suitably comprise a safe and effective amount, preferably from 0.005% to 50% by weight of the composition and more preferably from 0.05% to 25% by weight of the composition of at least one Boswellia extract, or at least  
5 one boswellic acid or derivative thereof.

Suitable extracts for use herein may be derived from the following Boswellia plants including Boswellia Carterii, Boswellia Frereana, Boswellia Bhau-dajaina, Boswellia Serrata and Boswellia Thurifera. The preferred plants from which extracts are derived are  
10 Boswellia Serrata.

The extracts derived from Boswellia plants can comprise gums, oleo-gums, resins, essential oils and residues, or mixtures thereof. Preferred extracts for use herein are gums.

15 The Boswellia gum extract useful herein comprises a mixture of active triterpenoid compounds more commonly known as boswellic acids. All boswellic acids have a pentacyclic structure based on 12-ursen-24-oic acid with differing substituents. Many individual boswellic acid compounds have been isolated from the Boswellia extract including  $\alpha$ - and  $\beta$ -boswellic acids and derivatives thereof. Of these,  $\beta$ -boswellic acid and  
20 derivatives thereof are thought to be the active components.

A typical extract comprising Boswellia Serrata gum resin will comprise greater than 50% by weight boswellic acids and often more than 60% by weight boswellic acids.

25 A typical extract of a Boswellia plant suitable for use herein comprises a mixture of boswellic acids comprising at least one of 3a-hydroxyurs-12-ene-24-oic acid, 3a-acetoxyurs-12-ene-24-oic acid, 3a-hydroxyurs-12-ene-11-keto-24-oic acid and 3a-hydroxyurs-9,12-dien-24-oic acid.

30 Boswellia extracts suitable for use herein are commercially available for example from Quest International, Kent, UK.

The compositions of the invention also comprise a carrier for the at least one extract of a *Boswellia* plant, or the at least one boswellic acid or derivative thereof.

- 5 In accordance with the invention, suitable carriers for this purpose are selected from the group consisting of branched fatty alcohols containing 8 to 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24 carbon atoms, and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and  
10 said unsaturated fatty acids, or mixtures thereof.

The compositions of the present invention typically comprise from 50% to 99.995%, preferably from 75% to 99.95%, and even more preferably from 80% to 95% of a carrier by weight of the composition.

15

- The preferred carriers for use herein are selected from branched fatty alcohols or branched fatty acids containing 8 to 32 carbon atoms, or mixtures thereof, which are liquids at room temperature. Preferably, the branched fatty alcohols and fatty acids are saturated. Saturated compounds generally have good stability against oxidation. More preferred, are  
20 saturated, branched fatty alcohols or fatty acids containing from 8 to 20 carbon atoms. Particularly useful branched fatty alcohols and fatty acids herein include isostearyl alcohol, isostearic acid, isocetyl alcohol, isopalmitic acid, octyldodecanol, octyldecanol, hexyldecanol, butyloctanol and ethylhexanol.

- 25 Unsaturated fatty alcohols and unsaturated fatty acids, containing 12 to 24 carbon atoms which are liquid at room temperature are also good carriers for *Boswellia* extracts. However, their presence may be disadvantageous in compositions requiring long term storage because as they are unsaturated, they have the potential to become oxidised and rancid over time. Preferred for use herein are unsaturated fatty alcohols or unsaturated  
30 fatty acids containing from 16 to 20 carbon atoms. Particularly useful unsaturated alcohols

and unsaturated acids herein include oleyl alcohol, oleic acid, linoleic acid and linolenic acid.

Derivatives of the above described branched, or unsaturated fatty acids and alcohols are also good carriers for the Boswellia extract. Useful derivatives include the following:

(a) Ethoxylated derivatives that are liquid at room temperature. Useful ethoxylated derivatives herein include derivatives of branched fatty alcohols or acids and derivatives of unsaturated fatty alcohols or acids. Preferably, the number of ethylene oxide units per mole of fatty acid or fatty alcohol is in the range 1 to 15 and more preferably is in the range 1 to 10. It is also preferred that the derivative has a calculated HLB (hydrophilic / lipophilic balance) of less than 15 and preferably in the range 2 to 9.

(b) Esters of the abovementioned branched, or unsaturated fatty acids, the esters being liquid at room temperature. The fatty acids may be esterified with a wide variety of alcohols, including branched or linear, saturated or unsaturated alcohols. Preferably, the fatty acid is esterified with an alcohol containing from 2 to 18 carbon atoms. Preferred esters for use herein are branched or unsaturated fatty acids esterified with a hexitol anhydride. The esters of hexitol anhydrides can be mono-, di- or tri-esters but are preferably mono-esters (i.e. the ratio of acid to hexitol anhydride is 1 : 1). A particularly preferred hexitol anhydride from which to prepare an ester is sorbitan. Other preferred esters are monoesters of glycerol and a branched fatty acid (monoglycerides of branched fatty acids). Monoglyceride compositions herein contain at least 80 per cent by weight of a monoglyceride of a single acid. Yet other preferred esters are monoesters of propylene glycol, butylene glycol, hexylene glycol or dipropylene glycol and a branched or an unsaturated fatty acid.

(c) Esters of the branched fatty alcohols or unsaturated fatty alcohols, the esters being liquid at room temperature. The fatty alcohols may be reacted with a wide variety of acids, including branched or linear, saturated or unsaturated acids and hydroxy acids such as  $\alpha$ -



hydroxy acids or  $\beta$ -hydroxy acids. Preferably, the acid contains from 2 to 18 carbon atoms.

(d) Ethoxylated derivatives of hexitol anhydride esters as defined in (b) above. The degree of ethoxylation is preferably from 1 to 15 ethylene oxide units per mole of hexitol anhydride ester and the ethoxylated ester is liquid at room temperature.

(e) Ethoxylated derivatives of monoglycerides as defined in (b) above. The degree of ethoxylation is preferably from 1 to 15 ethylene oxide units per mole of monoglyceride and the ethoxylated monoglyceride is liquid at room temperature.

Generally, the carriers used in the compositions of the invention are liquid at room temperature. However, it is not essential that the carrier should be completely free from solid matter. Since many available fatty alcohols and fatty acids comprise mixtures of alcohols or acids, certain isomers can be present as solid matter in the mixture. The presence of such solid matter is not detrimental to the use of a particular carrier, provided that the carrier is fluid at room temperature. For the purposes of assessing fluidity in relation to this invention a temperature of 23° C is assumed for "room temperature".

The carriers used in the compositions of the invention are capable of dispersing or dissolving the Boswellia extracts or boswellic acids or derivatives thereof. It is not essential that the extract or acid be completely soluble in the carrier, provided that the mixture of extract or acid and carrier can be incorporated into skin care or hair care products to produce a stable composition.

The carrier of the present invention may also include other excipients conventionally added to compositions suitable for application to the skin or hair such as, silicones, solvents such as water, emollients, or emulsifiers for example.

Optionally, the compositions herein may comprise conventional ingredients normally present in compositions for application to the skin or hair. Non-limiting examples of such

ingredients include alkanolamide surfactants, alkyl polyglucose derivatives, alkyl ether sulphate surfactants, allantoin, aloe barbadensis mil (aloe vera linne),  $\alpha$ -hydroxycarboxylic acids, aluminium chlorhydrate and its derivatives, aluminium salts, amide derivatives, amino acids, amphoteric surfactants, ascorbic acid and its salts, bentonite and hectorite, 5 benzyl alcohol, bisabolol, butane propellants, carboxy vinyl polymer water soluble salts, carboxy methylcellulose, carrageenan, cetrimonium salts, cholesterol, cocamidopropyl betaine, depilatories, dihydroxyacetone, dimethyl ether, ethanol, fatty acids, fatty acid citrate esters, fatty alcohols, fragrance ingredients, glucose esters of higher fatty acids, glycerin, glyceryl stearates, glycols, guar gum, gum arabic, hyaluronic acid, 10 hydroxybenzoic acids, hydroquinone, isopropyl alcohol, kojic acid, lanolin, lauryl betaine, lipids extracted from the biomass of microorganisms, yeasts, moulds and bacteria, liposomes, liquorice (glycyrrhiza glabra) and its components (glycyrrhetic acid, glycyrrhizic acid, etc.), low molecular weight acidic mucopolysaccharides & their salts, low molecular weight humectant components, magnesium aluminium silicate, methacrylate 15 polymers, mineral oils, mineral powders, natural or synthetic amino acid with protein or peptide bond, natural moisturizing factor ingredients eg lactic acid, non-volatile silicones, oil agent(s), oil matter, oligosaccharide(s), organic acids, pantothenic acid and its derivatives, petroleum jelly, phospholipid, polysaccharides eg locust bean gum, polyvinyl alcohol, polypeptides, proteins, piroctone olamine, quaternised silicone derivatives, raffinose, 20 saponins, sodium chloride, sodium cocoyl isethionate, sodium hyaluronate, sources of linoleic acid, sterols, sterol esters, sucrose, sugar esters of higher fatty acids, sunscreens, surfactants, talc, tea tree oil (*Melaleuca* spp.), thioglycolic acid and its derivatives, titanium dioxide, tocopherol and esters thereof, triclosan, mono- or di- or triglycerides, vegetable oils, vitamins and analogues, volatile silicone fluids, water, water soluble 25 moisture-retaining agents, water soluble polymers, waxes, zinc oxide, zinc pyrithione.

The compositions of the present invention may be used in a wide range of products suitable for use on, or application to, the skin or hair particularly, but not exclusively, cosmetic compositions. Such products may be formulated in various product forms such 30 as lotions, creams, gels, sticks, solutions, aerosols, solid soaps or liquid cleansers. Thus, in a further aspect, the present invention provides a product for application to the skin or

hair comprising a composition in accordance with the invention. The term 'skin' as used herein, means any outer surface of the body including the nails.

When products comprising a composition in accordance with the invention are prepared,  
5 the composition of the invention can be separately prepared and added to the other ingredients of the desired product, or the compositions of the invention can be formed during the manufacture of the product.

The invention is illustrated by the following non-limiting examples.

10

### EXAMPLE 1

#### Carrier/Boswellia Serrata Extract Blends

Compositions according to the invention were prepared by mixing ingredients in the  
15 amounts listed below.

	Composition 1)	Boswellia Serrata Gum Resin Extract	10% w/w
		Isostearyl Alcohol	90% w/w
20	Composition 2)	Boswellia Serrata Gum Resin Extract	15% w/w
		Isostearic Acid	85% w/w
	Composition 3)	Boswellia Serrata Gum Resin Extract	5% w/w
		Oleic Acid	95% w/w
25	Composition 4)	Boswellia Serrata Gum Resin Extract	15% w/w
		Polyoxyethylene (2) oleyl alcohol	85% w/w
30	Composition 5)	Boswellia Serrata Gum Resin Extract	5% w/w
		Polyoxyethylene (3) isostearic acid	95% w/w

	Composition 6)	Boswellia Serrata Gum Resin Extract	10% w/w
		Sorbitan monolaurate	90% w/w
5	Composition 7)	Boswellia Serrata Gum Resin Extract	20% w/w
		Polyoxyethylene (20) sorbitan monolaurate	80% w/w
	Composition 8)	Boswellia Serrata Gum Resin Extract	5% w/w
		Isopropyl isostearate	95% w/w

10 **EXAMPLE 2**

An Aftersun Cream Gelee was prepared according to the following formulation.

<u>INGREDIENT</u>	<u>INCI NAME</u>	<u>w/w%</u>
<b>Phase A:</b>		
Deionised Water (A)		to 100%
Klucel-99-H	Hydroxypropylcellulose	0.20
Carbopol ultrez 10	Carbomer	0.80
<b>Phase B:</b>		
Boswellia Serrata Gum	Boswellia Serrata	0.15
Extract		
Isostearyl alcohol	Isostearyl Alcohol	1.35
Euxyl K400	Methyldibromoglutaronitrile	and 0.10
	phenoxyethanol	
Cremaphor RH 40	PEG-40 hydro.castor oil	0.30
Flamingo pearl blue 100		0.50
<b>Phase C:</b>		
Netrol TE	Tetrahydroxypropyl ethylenediamine	0.20

Deionised Water	4.40
Quest perfume	0.50

(Klucel-99-H, Carbopol, Euxyl K400, Cremaphor RH40 and Netrol TE are all Trade Marks.)

- 5 Deionised water (A) and hydroxypropylcellulose were combined and mixed under very high shear for 1 hour. Carbomer was added and left to wet out. Phase B was prepared by combining the ingredients with heating to 65° C and was then added to A with minimal shearing so as to avoid breaking down the structure. Phase C was prepared by combining the ingredients and added to the mixture of Phases A and B and the combined mixture was
- 10 stirred gently for 15 minutes.

The presence of Boswellia Serrata extract helps to reduce redness and irritation and produces an even skin tone.

### 15 EXAMPLE 3

An Acne Minimising Night Cream was prepared to the following formulation.

<u>INGREDIENT</u>	<u>INCI NAME</u>	<u>w/w%</u>
<b>Phase A:</b>		
Oleyl alcohol		4.00
Crodamol OP	2-Ethylhexyl palmitate	8.00
Dow Corning 200/350	Dimethicone	0.50
Emcol E 607S	Steapyrium chloride	3.50
Dry Flo PC	Aluminium starch octenyl succinate	4.00
Boswellia Serrata Gum Extract	Boswellia Serrata	0.50

**Phase B:**

Deionised water	to 100.00
Lactic acid	2.50
Sodium lactate	2.00

**Phase C:**

Xanthan XP	Xanthan gum	0.40
Glycerine		1.50

**Phase D:**

Euxyl K400	Methyldibromoglutaronitrile and Phenoxyethanol	0.10
Quest perfume		0.50

(Crodamol OP, Dow Corning 200/300, Emcol E 6075, Dry Flo PC, Xanthan XP and Euxyl K400 are all Trade Marks.)

- 5 Phase B was prepared by combining the ingredients. Phase C was prepared by combining the ingredients and was added to Phase B using high shear. Phase A was prepared by combining the ingredients and this mixture and Phase A were heated to 75°C. Phase A was added to the mixture using shear, and then cooled with stirring to 40°C, when Phase D was added and stirred in thoroughly.

10

The Boswellia Serrata Extract produced calming benefits in this cream which are especially good for problematic and sensitive skin.

**EXAMPLE 4**

An After Hair Removal Cream was prepared according to the following formulation.

<b><u>INGREDIENT</u></b>	<b><u>INCI NAME</u></b>	<b><u>w/w%</u></b>
<b>Phase A:</b>		
Deionised water		to 100.00
Propylene glycol		1.80
Dipropylene glycol		0.50
Carbopol ultrez	Carbomer	0.20
Glycerine		0.25
Sepigel 305	Polyacrylamide, C13-14 isoparaffin	0.30
Lubrajel TW	Polyglycerylmethacrylate and Propylene glycol	0.50
Algisium C	Methylsilanol mannuronate	0.20
<b>Phase B:</b>		
Finsolv TN	C12-C15 alkyl benzoate	2.00
Dow Corning 344	Cyclomethicone	4.50
Polysynlane	Hydrogenated polyisobutene	1.60
Wickenol 153	Isotridecyl isononanoate	2.00
Isostearyl alcohol		4.50
Dow Corning 200/350	Dimethicone	0.20
Questamide H	Bishydroxyethyl Biscetyl Malonamide	0.80
Boswellia Serrata	Boswellia Serrata	0.10
Gum Extract		
Myristic acid		0.40
Cetearyl alcohol		4.00
Ceraphyl 375	Isostearyl neopentanoate	0.50

**Phase C:**

Triethanolamine		0.20
Phenonip	Phenoxyethanol, methylparaben	0.50
	Ethylparaben, propylparaben, butylparaben	
Apricot extract		0.30
Quest perfume		0.50

(Carbopol, Sepigel 305, Lubragel TW, Algisium C, Finsolv TN, Dow Corning 344, Polysynlane, Wickenol 153, Dow Corning 200/300, Questamide H, Ceraphyl 375 and Phenonip are all Trade Marks.)

5

Phase A and Phase B were separately prepared by combining the ingredients and heated to 75°C when Phase B was added to Phase A, and the triethanolamine was added. The emulsion was stirred until it was homogeneous and cooled. When the temperature reached 40°C, the preservative (Phenonip) and apricot extract and perfume were added and stirred in thoroughly.

10

Due to the calming benefits of the Boswellia extract this cream prevents the appearance of red dots which usually appear after shaving as well as waxing or other ways of removing hair.

15

#### **EXAMPLE 5**

A shampoo suitable for cleansing a baby's hair and scalp was prepared according to the following formulation:

20

<b><u>INGREDIENT</u></b>	<b><u>INCI NAME</u></b>	<b><u>w/w%</u></b>
<b>Phase A:</b>		
Deionised water		to 100.00
Tween 20	Polysorbate 20	25.00
Empicol TL40/T	TEA-Lauryl Sulfate	20.00



Plantacare 1200	Decyl Polyglucose	7.50
Tego Betain F50	Cocamidopropyl Betaine	2.50
Germaben-II	Diazolidinyl Urea & Methylparaben & Propylparaben & Propylene Glycol	0.40
Nervanaid BA2	Disodium EDTA	0.10
Uvinul MS40	Benzophenone-4	0.03
Cetiol HE	PEG-7 Glyceryl Cocoate	0.60

**Phase B:**

Boswellia Serrata Gum	Boswellia Serrata	0.10
Extract		
Dipropylene Glycol	Dipropylene Glycol	1.00
Isostearic acid	Isostearic Acid	0.50
Perfume		0.50
Sodium chloride		2.50

(Tween 20, Empicol TL40/T, Plantacare 1200, Tego Betain F50, Germaben-II, Nervanaid BA2, Uvinul MS40 and Cetiol HE are all Trade Marks.)

- 5 Phase A was prepared by firstly dissolving with stirring the disodium EDTA and benzophenone-4 in water. The remaining ingredients of Phase A were then combined with this solution, stirring the mixture between each addition.

- 10 Phase B was prepared by combining the ingredients with heating to 65°C. This mixture was then combined with Phase A. Perfume was then added to the mixture of Phases A and B and the combined mixture thickened upon the addition of sodium chloride.

The presence of Boswellia Serrata extract helps to calm and prevent irritation caused by surfactants.

**EXAMPLE 6**

A hair shampoo suitable for frequent use was prepared according to the following formulation:

5

<b><u>INGREDIENT</u></b>	<b><u>INCI NAME</u></b>	<b><u>w/w%</u></b>
<b>Phase A:</b>		
Deionised water		to 100.00
Empicol ESB3	Sodium Laureth Sulfate (28%)	20.00
Texapon ALS	Ammonium Sulfate	20.00
Plantacare 818	Coco Glucoside	7.50
Tego Betain F50	Cocamidopropyl Betaine	2.50
Nervanaid BA2	Disodium EDTA	0.10
Cetiol HE	PEG-7 Glyceryl Cocoate	0.60
Germaben-II	Diazolidinyl Urea & Methylparaben & Propylparaben & Propylene Glycol	0.40
<b>Phase B:</b>		
Boswellia Serrata Gum	Boswellia Serrata	0.20
Extract		
Dipropylene Glycol	Dipropylene Glycol	1.00
Isostearic acid	Isostearic Acid	0.40
Propylene Glycol	Propylene Glycol	0.60
Perfume		0.50
Sodium chloride		2.50

(Empicol ESB3, Texapon ALS, Plantacare 818, Tego Betain F50, Nervanaid BA2, Cetiol HE, and Germaben-II are all Trade Marks.)

Phase A was prepared by dissolving the disodium EDTA in water with stirring. The remaining ingredients of Phase A were then combined with this solution, stirring the mixture between each addition.

- 5 Phase B was prepared by combining the ingredients with heating to 65°C. This mixture was then combined with Phase A. Perfume was then added to the mixture of Phases A and B and the combined mixture thickened upon the addition of sodium chloride.

10 The presence of Boswellia Serrata extract helps to prevent and calm irritation caused by surfactants.

#### **EXAMPLE 7**

A depilatory cream was prepared according to the following formulation.

15

<b><u>INGREDIENT</u></b>	<b><u>INCI NAME</u></b>	<b><u>w/w%</u></b>
<b>Phase A:</b>		
Cetyl Alcohol		5.00
Eumulgin B3	Ceteareth-30	2.00
Mineral Oil		7.00
Boswellia Serrata Gum	Boswellia Serrata	0.20
Extract		
Isostearyl Alcohol	Isostearyl Alcohol	1.80
<b>Phase B:</b>		
Water		to 100.00
Carbopol Ultrez	Carbomer	1.50
Dipropylene Glycol		2.00
Potassium		10.00
Thioglycolate (40%)		
Potassium Hydroxide		2.50

(Eumulgin B3 and Carbopol are Trade Marks.)

5 Phase B was prepared by combining the carbomer and dipropylene glycol with water and allowing the carbomer to wet out. Potassium thioglycolate (40%) was then carefully added to the hydrated polymer aqueous mixture, followed by potassium hydroxide. Phase B was then heated to 65°C.

Phase A was separately prepared by combining all of the ingredients and heating to 65°C.

10 Phase A was then added to phase B using high shear mixing. The emulsion was stirred until it was homogeneous and cooled to room temperature. The pH of the resulting emulsion was then adjusted to 12.5 with the addition of a 20% solution of potassium hydroxide.

15 Due to the calming benefits of Boswellia extract, this cream alleviates the appearance of red dots or rashes appearing on the skin following depilation with the alkaline cream.

**CLAIMS**

1. A composition suitable for use on the skin or hair comprising;
  - 5 a) at least one extract of a *Boswellia* plant, or at least one boswellic acid or derivative thereof; and
  - b) a carrier selected from the group consisting of branched fatty alcohols containing 8 to 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty  
10 alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24 carbon atoms and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and said unsaturated fatty acids, or mixtures thereof.
2. A composition according to claim 1, wherein the extract comprises a *Boswellia Serrata*  
15 gum resin.
3. A composition according to claim 1 or 2, wherein said at least one extract of a *Boswellia* plant comprises a mixture of boswellic acids comprising at least one of 3a-hydroxyurs-12-ene-24-oic acid, 3a-acetoxyurs-12-ene-24-oic acid, 3a-hydroxyurs-12-ene-  
20 11-keto-24-oic acid and 3a-hydroxyurs-9,12-dien-24-oic acid.
4. A composition according to any one of the preceding claims, wherein the carrier is a saturated branched fatty alcohol or a saturated branched fatty acid and is liquid at room  
25 temperature.
5. A composition according to claim 4, wherein the saturated branched fatty alcohol or the saturated branched fatty acid contains from 8 to 20 carbon atoms.
6. A composition according to claims 1, 2 or 3, wherein the carrier is an unsaturated fatty  
30 alcohol or an unsaturated fatty acid containing from 16 to 20 carbon atoms.

7. A composition according to claims 1, 2, or 3, wherein the carrier is an ethoxylated derivative of a branched fatty alcohol, a branched fatty acid, an unsaturated fatty alcohol or an unsaturated fatty acid.
- 5 8. A composition according to claim 7, wherein the ethoxylated derivative has from 1 to 15 ethylene oxide units per mole of fatty alcohol or per mole of fatty acid.
9. A composition according to claims 1, 2 or 3, wherein the carrier is a branched or unsaturated fatty acid ester, esterified with a hexitol anhydride.
- 10 10. A composition according to claims 1, 2 or 3, wherein the carrier is a monoester of glycerol and a branched fatty acid.
11. A composition according to claims 1,2 or 3, wherein the carrier is a monoester of  
15 propylene glycol, butylene glycol, hexylene glycol or dipropylene glycol and a branched fatty acid or an unsaturated fatty acid.
12. A composition according to claims 1, 2 or 3, wherein the carrier is an ester of a branched fatty alcohol or an unsaturated fatty alcohol with an acid.
- 20 13. A composition according to claim 1, 2 or 3, wherein the carrier is an ethoxylated derivative of an ester of a hexitol anhydride and a branched fatty acid or an unsaturated fatty acid.
- 25 14. A composition according to claims 1, 2 or 3, wherein the carrier is an ethoxylated derivative of a monoglyceride of a branched fatty acid.
15. A composition according to any one of the preceding claims, wherein the composition comprises from 0.005% to 50%, preferably from 0.05% to 25% by weight of at least one  
30 Boswellia extract, or at least one boswellic acid or derivative thereof.

16. A composition according to any one of the preceding claims, wherein the extract of a Boswellia plant is Boswellia Serrata gum resin extract which contains greater than 50% by weight boswellic acids.
- 5 17. A product for application to the skin or hair, comprising a composition in accordance with anyone of the preceding claims.
18. A method of preparing a composition suitable for application to the skin or hair comprising mixing a composition comprising;
- 10 a) at least one extract of a Boswellia plant, or at least one boswellic acid or derivative thereof; and
- b) a carrier selected from the group consisting of branched fatty alcohols containing 8 to 15 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24 carbon atoms and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and said unsaturated fatty acids, or mixtures thereof
- 20 with at least one cosmetically or pharmaceutically acceptable ingredient.
19. The use of a composition comprising;
- a) at least one extract of a Boswellia plant, or at least one boswellic acid or derivative 25 thereof; and
- b) a carrier selected from the group consisting of branched fatty alcohols containing 8 to 32 carbon atoms, branched fatty acids containing 8 to 32 carbon atoms, unsaturated fatty alcohols containing 12 to 24 carbon atoms, unsaturated fatty acids containing 12 to 24 30 carbon atoms and derivatives of said branched fatty alcohols, said branched fatty acids, said unsaturated fatty alcohols and said unsaturated fatty acids, or mixtures thereof

for preparing compositions suitable for application to the skin or hair.



# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/01114

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K35/78 A61K7/48

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, FSTA, BIOSIS, MEDLINE, PASCAL, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>EP 0 755 940 A (COUNCIL SCIENT IND RES) 29 January 1997 (1997-01-29) cited in the application</p> <p style="text-align: center;">---</p> <p style="text-align: center;">-/--</p>	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone.

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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Date of the actual completion of the international search

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/01114

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>           DATABASE WPI            Section Ch, Week 199931            Derwent Publications Ltd., London, GB;            Class A96, AN 1999-369936            XP002141933            QUEST INT UK LTD: "Use of Boswellia            extracts, menthyl pyrrolidone carboxylate,            ceramides and pongamol - are useful in            e.g. cosmetics, food stuffs and            pharmaceuticals"            abstract            &amp; RESEARCH DISCLOSURE,            vol. 422, no. 034,            10 June 1999 (1999-06-10),            Emsworth, GB            -----         </p>	

**...information on patent family members**

PCT/GB 00/01114

Form PCT/ISA/210 (patent family annex) (July 1992)